REMARKS

The Amendments

Claim 1 has been amended to incorporate the limitations of claim 2 by specifying that the waste stream is aerated for a time of about one to about seven days. Claim 2 has been cancelled as redundant. Claim 1 has also been amended to specify that the waste stream is from food processing, municipal waste treatment, fermentation or chemical plants. Support is found, e.g., at page 1, lines 6-9. Claims 3-6 and 8-9 have been amended to delete multiple dependencies. New claim 10 has been added to specify that the waste stream does not contain added sodium hypochlorite or hydrogen peroxide. Support is found, e.g., at page 3, lines 24-25 of the specification.

The Rejection under Section 103(a)

Claims 1-10 have been rejected under 103(a). It is believed this is in error, as only nine claims appear to have been pending in the application prior to the addition of new claim 10 with this amendment. The references cited are U.S. Patent No. 6,235,339, Harmon et al.; U.S. Patent No. 4,559,145, Roets; the "admitted prior art" (page 5, lines 6-10 of the specification, which states that aeration can be accomplished by means known to the art; U.S. Patent No. 4,983,297, Kaczmarek et al.; and U.S. Patent No. 4,085,041, Othmer. The Office Action states:

> Harmon et al. teach that using magnesium chloride instead of the prior art usage of iron chloride is beneficial. (See col. 4, lines 28-41). Harmon et al. teach treating organic waste streams containing animal fat, blood, tissue, etc. The amount of magnesium chloride: 0.5-5.0% by vol. The patent does not teach aeration. It does teach the magnesium chloride-dissolved air flotation process and the removal of the flocculated material. See col. 3, lines 60-67. The patent also teaches reducing the BOD to less than about 750 ppm. See claim 5.
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> Roets teaches chemically treating proteinaceous waste, and then aerating using a venturi type system. Foam formed is removed

during the aeration. See the claims that describe the steps. See col. 1, lines 54+ and col. 2, lines 29-32. In this regard Fullerton et al. teach at col. 2, lines 1-10, that oxygen aeration produces foam that is typically undesirable, which rises to the top and is removed.

The specification discloses that the aeration is performed as is known in the art. The prior art listed therein is said to accomplish the aeration. Othmer teaches coagulating and flocculating waste first before aeration, and then using a Venturi system for the aeration (col. 2, line 4, col. 4, lines 48-50) to reduce BOD (line 56). As for the time used for aeration, lines 15-25 (col. 4) teaches some of the parameters determining this. However, aeration time will depend on the degree of reduction of BOD required in the effluent. See also col. 10, lines 42-44. Kaczmarek et al. is used here only to show that aerobic waste treatment also is used because the method decreases BOD. See col. 4, lines 46-49.

It would have been obvious to combine the chemical treatment of proteinaceous wastes of Harmon et al. with an aeration step as is shown by Roets, which is also drawn to the same endeavor and uses iron chloride instead of magnesium chloride, which is followed thereafter by aeration. Since Kaczmarek et al. teach that aeration also reduces BOD in waste treatment, then such disclosure provides the motivation to combine Harmon et al.'s magnesium chloride treatment to reduce BOD with aeration to reduce BOD, in the same manner as Roets, i.e. chemical treatment followed by aeration. It would also have been obvious to remove any foam formation for the reasons shown by Fullerton et al. and Roets. To use any aeration system, including the Venturi system as shown by Othmer would have been obvious, barring any evidence to the contrary. To determine the level of dissolved oxygen as claimed in claim 2 [sic, claim 5], would have been within the realm of the ordinary practitioner and would have been dependent on the initial BOD level and the final BOD level desired by the practitioner.

Independent claim 1 has been amended to incorporate the limitation of cancelled claim 2, to specify that aerating the waste stream occurs for a time of about one to about seven days. As shown in Figures 1A and 1B, using 24 hours aeration time (one day) or more, the BOD level is reduced more when $MgCl_2$ is used than when $FeCl_2$ is used. Claim 1 has also been amended to specify that the waste stream is from a food processing plant.

None of the references relevant to the present invention disclose or suggest a treatment time as long as one day as presently claimed herein. Harmon et al. does not teach aeration at all. Roets also does not specify an aeration time. Fullerton et al. discloses at col. 25, lines 54-57 a total process time of only two hours.

Othmer, at col. 10, lines 42-44, teaches an aeration time between 30 minutes to several hours, and in claim 8, from 10 minutes to five hours, depending on whether coagulating and deflocculating agents have been used. In any event, even if Othmer taught that aeration time depends on the degree of reduction of BOD required in the effluent, such a teaching would need to be interpreted to be within the limits of the times disclosed in Othmer, i.e., 10 minutes to five hours.

Although Kaczmarek in Table III specifies a retention time of one day in the aerobic treatment zone, Kaczmarek is not relevant to the presently-claimed invention because it is a process for treating water separated from crude oil at a production well rather than wastewater from food processing, municipal waste treatment, fermentation or chemical plants. Further, its aerobic treatment process also involves treatment with aerobic microorganisms, rather than simple aeration by means known to the art.

Because no relevant reference teaches or suggests an aeration time as long as one day, it is submitted the claims are not obvious in view of the references.

In addition, Roets does not disclose the use of ionic magnesium as is claimed herein. It discloses also that a pH below 7 should be used (col. 1, line 64), and a pH of less than about 6.5 is desirable (col. 2, lines 65-66). One skilled in the art would be unlikely to combine the teachings of Roets with those of Harmon et al. because the Harmon et al. requires a pH of at least about 7.0 (col. 1, line 62). As there is no motivation to combine these references, no *prima facie* case of obviousness has been made out.

Note that Harmon et al. teach against new claim 10 which specifies that no sodium hypochlorite or hydrogen peroxide oxidizing agents are added to the waste stream. Harmon et al. teaches that it may be necessary to add such oxidizing agents (col. 4, lines 8-22), whereas the present invention teaches that aeration eliminates the need for oxidizing agents such as sodium hypochlorite or hydrogen peroxide (p. 3, lines 24-25). Roets also teaches adding oxidizing agents (paragraph bridging cols. 2 and 3).

It is submitted that the present claims are allowable over the cited references. An aeration period of as long as one day to one week is not taught or suggested by the relevant references. In fact, these references teach against such a long period in disclosing times of two hours (Fullerton) or up to five hours (Othmer). It is well-settled that a reference that teaches against a particular claimed element cannot be combined with that element in order to formulate an obviousness rejection. (See, *e.g., Mitsubishi Elec. Corp. v. Ampex Corp.* 190 F.3d 1300, 51 U.S.P.Q.2d 1910 (CAFC 1999).) Moreover, there is no motivation to combine the references as discussed above. Thus no *prima facie* case of obviousness has been made out with respect to the currently-presented claims.

Conclusion

This application appearing to be in condition for allowance, withdrawal of the rejections and passage of this application to issuance is respectfully requested. This response is accompanied by a Request for Extension of time of two months. It is believed a fee of $225.00 is due. Please deduct this amount and any amount required for any further extension of time necessary from deposit account 07-1969.

Respectfully Submitted,

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